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## BIOGRAPHICAL SKETCH OF ARCHIBALD WELCH, M.D.

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[Read before the "Hartford Medical Society," and published in the Boston Medical and Surgical Journal by request of the members.]

DR. ARCHIBALD WELCH was the youngest son of the late Rev. Moses Cook Welch, D.D., and was born in Mansfield, Windham County, Ct., March 13, 1794. His father was a native of the same town, and while yet a young man was settled as the pastor of the Second Congregational Church in that place. He continued to discharge the duties of this office, esteemed and beloved by his people, till his death, in the 71st year of his age. He succeeded his father, the Rev. Daniel Welch, in the ministry; and it is worthy of remark that the father and son occupied the same pulpit for a period of 72 successive years. Rev. Moses C. Welch was one of the leading divines of the day. Dignified and commanding in his personal appearance, possessed of a strong mind, and great energy and decision of character, persevering in the accomplishment of his plans, accurate as a scholar, and eloquent as a speaker, he acquired an enviable reputation, and commended himself to the high regard of his people, and the members of his own profession.

The mother of the subject of this sketch was the daughter of Rev. Jonathan Ashley, of Deerfield, Mass. She was a person of exemplary piety and much worth; distinguished for her mild, gentle and amiable disposition, and modest deportment. She had a frail constitution, and suffered much from long-protracted dyspepsia.

Dr. Welch, while he inherited many of the characteristic traits of his father, was in constitution and general habits much like his mother. As a child he was distinguished for the loveliness and amiability of his natural disposition and deportment, and as a youth for his refined sentiments and tastes, and his high moral sense, which bore him away from all those follies into which the young are often beguiled. At this period, and ever after, so long as he had parents to reverence, he was actuated by a great regard for their known wishes and opinions.

He was educated under the watchful eye of his father. During his younger years he attended the common district school; but he was instructed in the languages and higher English branches, by his father him-

self. That he was thoroughly taught in these departments of his education, no one at all acquainted with the precise and rigid requirements of his tutor can for a moment doubt. It was probably owing in great measure to this thorough training, that he was always distinguished for his love of accuracy.

In the autumn of 1813, he entered the office of the late Joseph Palmer, M.D., of Ashford, in this State, a physician and surgeon of considerable celebrity, and enjoying an extensive practice in his own and neighboring parishes. He remained with Dr. Palmer as a student of medicine during the next three years, except the time spent in attending two courses of lectures at the Medical Institution of Yale College. At the close of the second lecture term, in January, 1816, the time which he had spent in the study of his profession was not sufficient to admit him to an examination for a diploma; and on the 16th of the following September, he presented himself for examination before the Board of Censors for Windham County, and received a license to practise. At that time it was his intention to return to New Haven and attend a third course of lectures, and be examined by the Board of Professors and Examining Committee. But severe and protracted sickness in his father's family prevented the accomplishment of this plan.

Dr. Welch commenced the practice of medicine in his native town at the early age of 22 years. And notwithstanding the usual prejudice against employing a young man in such responsible duties as devolve on a physician, he soon received the patronage and confidence of the community to a liberal extent; and these tokens of appreciation and favor with the people, both of his own and neighboring towns, steadily increased and strengthened during the sixteen years he practised in that place. And when, owing to his frail health, and the hardships attending the practice of medicine in a hilly region and among a scattered population, he was induced to exchange his field of labor for one where these hardships would be greatly diminished, his patrons and friends manifested their strong attachment to him, and their appreciation of his services, by using every persuasion, and offering every reasonable inducement, to cause him to remain among them. Another reason why he wished to change his place of residence, was that he might thereby secure better advantages for the education of his children than could be had in Mansfield.

In December, 1832, he accepted an invitation from the late S. B. Woodward, M.D., then of Wethersfield, Conn., to occupy the place he was about to leave; and in the same season Dr. Welch removed to that town. His reputation as a well-educated and successful physician, his gentlemanly demeanor and pleasing address, at once introduced him into the best families of the place, and won for him the esteem and confidence of the people in his new field. Probably few physicians have enjoyed the esteem and affectionate regard of those with whom they were brought in contact, to a greater extent than did Dr. Welch during the time that he lived in Wethersfield.

For about ten years of his stay in that village, he had the charge of the medical department of the Connecticut State Prison, under different

political administrations. In discharging his duties to the convicts he was actuated by feelings of kindness and pity, listening to the story of their sufferings with patience, investigating their diseases with all the care and minuteness that could be required by the most virtuous, and prescribing for them with as much concern as for any class of patients. In his intercourse with them he ever sought to do them good. He not only endeavored to relieve their condition when sick, but he studied to devise means for the removal of causes which tended to produce and develop disease among them. In his annual reports, made to the Directors of the Prison, he repeatedly called their attention to existing evils affecting the health of the prisoners, and urged their removal. And it is believed that many important improvements in the sanitary condition of the Prison have been the result of his efforts.

In 1836, by the recommendation of the Fellows of the Connecticut Medical Society, he received the honorary degree of M.D. from Yale College.

After sixteen years' practice in Wethersfield, he became convinced, as he has himself stated, "that he could no longer endure the hardships of the practice of medicine in the country. He therefore decided, though with great reluctance, that it was his duty to exchange that post for one which would not make such drafts upon his strength." Before leaving, he was strongly solicited by his numerous friends to abandon his purpose and continue with them. A communication was received by him, signed by more than fifty families of the place, urging him to remain.

His reason for selecting Hartford as the place of his future practice, I will state in his own words. "I did not prefer Hartford because I considered it deficient in number or ability of medical men. But being somewhat intimately acquainted with them and their social and honorable qualities, I was desirous to avail myself of the benefit and pleasure of their society." Accordingly he removed to Hartford in December, 1848. Of his success in his profession, his standing in the estimation of his medical brethren, and his appreciation by the public in this vicinity, it is not necessary for me to speak at length. With his professional career, you, gentlemen, are all familiar. I will, therefore, only say, that when Dr. Welch came to our city he was preceded by a well-grounded reputation, which continually increased with his acquaintance with our citizens. For many years he had enjoyed the high esteem and respect of the members of the profession, and his fidelity and skill were rewarded by the confidence and liberal patronage of the community.

In practice, he did not study to distinguish himself in any particular branch more than another, whether of medicine or of surgery, but ever held himself ready for whatever he might be called to treat. He performed several capital operations with skill. He had, in addition to a discriminating mind and sound judgment, those other qualifications necessary for a good operator. He was cool and collected in cases of emergency, and carried a steady hand; he had a correct eye, and possessed that mechanical tact which enabled him to apply dressings with neatness and despatch. But it should be stated, in this connection, that he had no especial fondness for operative surgery, and chose to put such

cases as required the use of the knife, into the hands of those who were ambitious to distinguish themselves in that art. Dr. Welch was a close observer. He studied the character of disease at the bed-side. In prescribing for the sick, he was deliberate and careful, ordinarily using mild means, and trusting much to the powers of nature for the removal of disease; yet he was prompt in adopting active measures in those cases where they were required. He was exact as to doses, and particular and definite in his directions.

In addition to a thorough acquaintance with the principles of his profession, he availed himself of all the sources of information within his reach. He read with critical appreciation the medical works and periodicals of the day, and was familiar with the results of the experience and discoveries of this active and inquiring age. His memory was retentive, and it may be truly said of him that he was well versed in all the departments of his profession.

His intercourse with the sick was distinguished by kindly interest, gentleness of manner, and unusual self-possession. He was familiar but chaste in his language, listening with patient attention to the history of their complaints. He possessed in an eminent degree those milder graces of heart and manner, which fitted him peculiarly for the ministries required in the house of sickness and mourning. Nor were his ministrations confined within strictly professional bounds. The heart of the suffering and sorrowing was touched by those words of consolation or of warning which none can so well administer as the *christian* physician.

His whole deportment was such as to invite the confidence of patient and friends, and to impress them with a sense of his entire sympathy, and his sacred regard for the inviolability of their confidence. His replies to the inquiries of patients and their friends relative to their conditions and prospects, were ever characterized by frankness and candor. He felt that they had a right to know his opinions, and that a fear lest knowledge of the *truth* might give alarm, or blast fond hopes, would not justify him in sacrificing his integrity by conveying erroneous impressions.

In investigating disease he was thorough, at the same time treating his patients with great delicacy and kindness. In his examination of patients, he made them feel that he gave himself up wholly for the time to them. He was independent in his treatment of them, not allowing their prejudices to influence his practice. Still he did not think it right to use remedies, though they might be the very best for the case, contrary to the declared wishes of the patient, or in a clandestine manner. In his address to the medical graduating class at Yale College, in 1844, he uses the following emphatic language, which indicated his practice in this particular.

"Clandestine practice, whatever the motive may be for its adoption, should never be tolerated. If there shall be a refusal to comply with your directions, it will be your duty to abandon the remedy, although it may be the only one on which you may rely, for you will not be at liberty to sacrifice truth, to save the life of the most eminently useful individual on earth."

Dr. Welch had no sympathy with quacks, or the practice of quackery



in any of its forms. In a report on medical ethics, presented by him to the Convention of the State Medical Society in 1852, he expressed his views on this subject in the following language:—

“The whole group of quackery and imposition of this character is opposed to the interests of the medical profession, and the welfare of the public; and every member of our profession, who wishes to advance the interests of science and benefit his fellow men, should at once and forever abandon all professional intercourse with those who make any pretensions to a *special system* of practice, avoiding with equal scrupulousness the natural bonesetter, the believer in the senseless doctrine, ‘*similia similibus curantur*,’ the dealer in lobelia, ‘*et id genus omne*.’”

His relations with the members of the profession were almost without exception the most pleasant and happy. He had their confidence, and was often called by them in consultation. His treatment of them was marked by fairness and a high sense of honor. When called to visit the patients of his brethren, he was free from pretence and ostentation, and if he recommended a change of treatment, he advised its accomplishment in a way not to compromise the attending physician, or impair the confidence of the patient.

Dr. Welch loved the society of his medical brethren, and his social intercourse with them was characterized by fraternal sympathy and regard. He was strongly attached to his old associates, men of his own age, with whom he had borne the common responsibilities and cares of medical practice. He also felt a peculiar interest in the young men of the profession. His manner with them was very friendly and companionable, and he took pleasure in imparting to them the fruits of his experience. In this way he won the warm regard of the young physicians with whom he came in contact. Few men were more generally acquainted with the physicians of our State, or had more personal friends among them.

Dr. W. placed a high estimate upon the benefits accruing to the profession, from medical societies and associations, and sought by all means in his power to contribute to their support and efficiency. He was for many years a member of the Hartford County Hopkins Medical Society; and when that was superseded by the Hartford Medical Society, he became a member of the latter, and manifested an interest in its welfare by his presence, and by taking an active part in its proceedings. His large experience in practice, and his facility in communicating facts, rendered him a valuable contributor to the pleasures and benefits of our meetings. He was very seldom absent from the meetings of the County Society, of which he was a member during the nearly forty years of his practice. He took a deep interest in the welfare of the State Medical Society, and made his arrangements to attend its annual conventions, allowing no ordinary business to deter him from being present on these occasions. He was ever active in devising measures to elevate the standard of medical science, and to promote the dignity and usefulness of the profession. In the associations with which he was connected, he repeatedly introduced suggestions in the form of resolutions, or otherwise, to bring about such results. An instance of this may with propriety be referred to at this time. On his retiring from the office of President of

the (Conn.) State Medical Society, he introduced a resolution requiring the President of the Society to make an annual address to the Convention. This resolution was adopted; and as the fruits of it, the Society has already been favored with two very elaborate and useful addresses—the first by a highly-esteemed friend, Dr. George Sumner, of this city, in 1851, giving a very interesting account of the history of medicine in this State, in biographical sketches of the early practitioners; the second by Dr. Blakeman, of Fairfield, in 1853, continuing the same subject as connected more particularly with Fairfield County, and its earlier physicians.

Dr. Welch received many tokens of the esteem and confidence with which he was regarded by his fellow physicians. He was appointed to deliver the annual dissertation before the State Society in 1837. He was successively chosen Secretary, Vice President and President of the State Society. He was for many years a member of the Board of Examiners of the Medical Institution of Yale College; and for a long time was one of the Visiting Committee of the Retreat for the Insane at Hartford. He was repeatedly chosen a delegate to the American Medical Association, and twice attended the meetings of that Society; first at Baltimore in 1850, and at the last meeting in New York city in 1853. On the latter occasion he was a member of the most important committee of the session, and one which imposed a large amount of business and responsibility on its members.

Dr. Welch was accurate and ready in composition, and it is to be regretted that his modesty should have prevented him from doing more in this way for the benefit of others. It was with much reluctance that he would consent to appear before the public as a speaker or writer. A few brief articles, principally descriptive of cases that came under his observation, published in the medical journals of the day; a biographical sketch of the late Dr. Silas Fuller; and an address delivered before a graduating class of the Medical Institution of Yale College, are the principal legacies of his pen.

In 1818, Dr. Welch married Miss Cynthia Hyde, daughter of the late Mr. Daniel Hyde, of Lebanon, Conn. Mrs. Welch is still living. He had five children—two daughters and three sons. Four of these survive him. His eldest daughter, who died August 10, 1850, in the 31st year of her age, was a lady of rare worth. Her excellent judgment, and her firmness of principle, made her a much-trusted companion of her father. The loss of such a daughter, at his time of life, in whose sympathy and society he had anticipated much for the future, was an overwhelming sorrow.

In his domestic relations he was eminently happy. He ever sought the comfort and well-being of his family more than his own ease. To give his children a good education, to qualify them for usefulness, and to establish in them virtuous principles, were objects far dearer to him than the accumulation of wealth. The pleasures of the home-circle were an unfailing delight to him. There he sought to throw off the cares of his profession, and to find in the kindly and unceasing offices of affection a refreshment of his spirits and energies.

He was very hospitable, and enjoyed the company of his friends at his own fireside, and around his own table. Very many of these will always remember the cheerful welcome they received at his door, and the gratification they imparted as well as enjoyed at his house. His conversation was pleasant and lively—often humorous, and not unfrequently sparkling with delicate wit. No dogmatism, or spirit of controversy, marred the pleasure of his society; and unless with very intimate friends, he politely deferred to others, when differing in opinion from them. In his friendships he was strongly attracted by a largeness of heart, generous affections, and originality of thought. His friends were very numerous; and this could hardly be otherwise with one so kind, and so disposed to social and friendly intercourse.

His disposition was naturally quick; but by self-culture had been subdued to almost unvarying evenness and sweetness. He had extraordinary control over all the propensities of his nature. In the great study of life—in the due regulation of the passions and affections of our nature—he had made great advances.

Dr. Welch had an exceedingly nice and accurate sense of justice and right, but his placable disposition inclined him towards the merciful, rather than the stern and that severity of justice which is untempered by compassion. Truthfulness was also, as has been indicated, one of the most prominent elements of his character, and gave an individuality to all his thoughts and feelings and actions.

His demeanor was modest in deference to others and in a becoming discharge of manifest duty. He was wholly free from straining after effect, and from all species of *acting*. Nothing was farther from his character than pretension of any sort. He had great simplicity and naturalness of conduct, and was repelled by any affectation in others.

He had an earnest belief in whatever opinion he held, and in general quite as earnest conviction of the erroneous character of opposite views. It is not surprising, therefore, that such a mind should make less account than is sometimes necessary, of the force of constitutional or educational bias in the formation of intellectual views. It was his disposition to judge of the correctness of a proposition by its moral bearings. Hence questions of propriety, or policy, or expediency, had to pass a double scrutiny before they were approved by him. It is not strange, therefore, that he should pronounce severe judgments upon those who seemed to disregard the *moral* bearings of a question, in accepting the cold deductions of logic.

He was wont to give more weight to what appeared to him the justice of a cause than to the opinions of his fellow men, and did not shrink from advocating a measure in opposition to the general current of opinion, even at the expense of good will. This was the case when, in the Legislature of 1838, he voted to submit to the people at large, whether the word "white," in the phrase "every white male citizen," should be stricken from the State Constitution. He was in a minority on this point in the Legislature, and in a very small minority in the town which he represented. But he lived to see the Legislature pass the resolution which was thus rejected in 1838.

So in early manhood he came to a decision which placed him in antagonism, not only with the general sentiment and practice of the people with whom he lived, but with the uniform custom of his fellow physicians. When he commenced the practice of medicine in 1816, he resolved never to take, at the houses of any of his patients, a drop of anything which could intoxicate. He was among the first, if not the first man in his own town, that practised "total abstinence," and the first to come out openly in the cause of temperance. The first public lecture on this subject, in Mansfield, was delivered at his instigation. Among the last labors of his pen were found notes for a lecture on temperance, which he had been requested to deliver in his native town. His interest in this subject never abated; and when the idea was broached of rooting out the traffic in intoxicating liquors on the principle that it is a nuisance, and, like all nuisances, a proper subject for legal prohibition, he at once accepted the proposition, and entered heartily into such measures as were intended to secure this prohibition in his native State.

Dr. Welch was well informed in national and State affairs, and was well acquainted with the leading views of the different political parties. His preferences were for the most part in favor of the principles of the whigs; but in deciding the merits of a question he was more careful to decide upon its moral bearings than its relations to party.

Dr. Welch united with the Congregational Church in Wethersfield in 1841. His hopeful conversion took place several years before this, but he delayed his public profession of religion from a distrust of himself. Ever after his father's decease he had family worship daily in his household. He was little disposed to speak of his own religious experience, but the principles of christianity lay deep in the ground work of his character, and found expression in his daily life and habits. They were recognized in his business transactions no less than in his family government. There was no demoralizing difference between his professions and his conduct in dealing with men.

Dr. Welch, as has been already intimated, had not a very robust constitution. He had several severe attacks of disease, and was on two or three occasions greatly prostrated with fever. During the earlier periods of his life he suffered much from dyspepsia, but as he advanced in years he in a great measure surmounted this difficulty, and his health in all respects was improved. It is believed that at no period of his life did he enjoy such uninterrupted health as during his last years, or that he was ever able to perform more labor than at this period. At the time of his death his form was erect, his step elastic, all his faculties were vigorous, and very few persons of his years had a fairer prospect of prolonged life. Dr. Welch died May 6th, 1853, in the 60th year of his age. You are all familiar with the circumstances attending his death. He spent the last days of his life in attending the American Medical Association in New York city. On this occasion he met with hundreds of his medical brethren assembled from all parts of our country.

On the evening of May 5th, he parted with his brethren at Metropolitan Hall, where, to the number of six or eight hundred, they had enjoyed the hospitalities of the physicians of New York. Many of them

were his old friends and associates ; with many he had recently become acquainted. He parted with these friends with the expectation of meeting many of them again. On the following morning he left New York for Hartford. It is not necessary for me to recall to your minds the mournful disaster which followed at Norwalk, cutting short in a moment of time the earthly existence of forty-seven human beings.

The body of Dr. Welch was among the first that was rescued from the wreck. Life had apparently become extinct with the first shock—the countenance being placid—the form bearing no sign of violence or of suffering in the mortal change.

The funeral took place on the Sabbath, the 8th of May, from the Pearl-street Congregational Church, of which Dr. Welch was a member.

The solemn service, the crowded and silent house, bore affecting testimony to the wide-spread grief occasioned by the sudden removal of one so beloved.

The Hartford Medical Society, and many physicians from neighboring towns, paid a tribute to the memory of the deceased by attending the funeral services in a body.

His remains were laid beside those of his daughter, whose grave he had a few days before visited and wet with his tears.

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#### PNEUMONIA AND RUPTURED DIAPHRAGM IN A HORSE.

BY CHARLES M. WOOD, VETERINARY SURGEON.

[Communicated for the Boston Medical and Surgical Journal.]

ON the 8th inst., at 12, M., I was requested to see a chesnut gelding, 6 years old, the property of a gentleman of this city. On examination, I found the symptoms as follows:—Pulse quick and indistinct, but, as well as I could count them, I thought about 80. Respiration quick and labored, and accompanied with occasional grunting, when required to move. Mouth cool, but dry; schneiderian membrane and conjunctiva highly injected. Body, legs and ears, cold. Countenance dejected; and head hanging down, almost to the floor. Fore legs standing wide apart; bowels slightly constipated, and faeces covered with mucus. I gave the following drench: Ether nitrosi, oz. ij.; tinct. zingib., oz. jss.; aqua, O. Had the body well clothed, the legs rubbed, and bandaged with flannel, and my patient placed in a large stall, with as much pure air as possible.

2, P.M.—Symptoms the same; gave him water, of which he drank freely; and, a short time after, gave the following: Aloes, 3 iij.; Ant. tart. potassæ, 3j.; nitrat. potass., 3 iij., in a ball. I ordered him to be kept quiet, and left him.

At 4, P.M., still the same. Offered him water, of which he took a moderate quantity. 6, P.M., pulse full and accelerated; respiration extremely laborious. Bled three quarts from the left jugular vein, which he did not bear well. He sighed several times, and appeared faint. I secured the orifice, and gave him a few swallows of water, which seemed to revive him. I then inserted a seton in the breast, dressed with lin.

cantharid., and gave enema of warm water and soap, which quickly produced a copious discharge of urine. I visited him several times before and at 9, P.M.; when I found him standing in nearly the same position; but his head was up, his ears and legs warm, and respiration apparently relieved. Ordered him four quarts of wetted bran, and a pail of water to be placed before him, and left him for the night.

9th, 6½, A.M.—He had not eaten his bran, nor lain down, and we could not perceive that his bedding was disturbed. He appeared to be standing in the same position as when left the previous night. His pulse now 72; breathing quick, but less labored. He drank freely and had an evacuation from the bowels. He was still reluctant to move, and grunted when compelled to do so. For several hours, the complaint appeared to be gradually yielding to the remedies. During the forenoon he coughed several times, which cough he evidently tried to suppress. Though apparently weak, and wavering in his stall, I still had some hopes of his recovery.

5, P.M., the young man who had charge of him came into the office, and said that the horse had lain down, but appeared easy. I immediately proceeded to the stable, where I found him lying on his left side. On approaching him, he rose up suddenly on the fore extremities, sitting like a dog on his haunches. He then rose up, and looking back to the right side, pawed with his fore feet several times, and again laid down on his left side, as before. He lay a few minutes, and then got up on his haunches, sitting in that position for a short time, looking back to the right side. He suddenly rose up, and appeared in great pain. His pulse became much quicker, and he was seized with trembling and hurried respiration. Indeed, so rapid was the change that I thought there was no chance of his recovery. Cold sweats bedewed the whole body. He lay down frequently, quickly rising again, and invariably sitting on his hinder quarters. From this last symptom (or position) and from the continued pain, I told my employer (who was present) that I believed the horse had a rupture of the diaphragm. I however gave him an opiate, and applied a stimulating embrocation to the abdomen, followed by an enema. For a short time the horse appeared easier; but in half an hour he was again in severe pain, still sweating and trembling, till the clothing upon him was shaken as if with the wind. I repeated medicine and enema, and the stimulants to the abdomen. I remained with him till 12, P.M.; he had been standing for about half an hour, and appeared to be relieved. I then instructed the man to remain with him; and if the pain returned, to apply the embrocation to the belly, as before, and let me know immediately. I now, accompanied by the owner (who had been with me for several hours), left my patient for the night.

10th, 4, A.M.—The young man rang the door-bell, and informed me that the horse was in great pain, frequently lying down, and quickly rising up and pawing, as before I left him. I immediately put on my clothing, and accompanied him to the stable. I found my patient standing, but leaning against the right-hand side of the stall. In a few minutes he fell on his right side. He struggled severely, and rose up on

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his haunches. He was evidently sinking fast; trembling and sweating profusely; and the paroxysms were so rapid, that it was dangerous to approach him. At length he threw himself violently on his right side; and, while in this position, the man crawled over him, and under the manger, and gave him some medicine from a bottle.\* He lay quite still for several minutes; when he rose up on his haunches, and looking anxiously to the right, sat wavering to and fro, till at length he fell upon the right side, which gave him great pain and uneasiness, and he struggled desperately. His sufferings were now intense. He was constantly lying, or throwing, himself down; rising up, and looking to the right side. I remained with him till 7, A.M., when I left him for about twenty minutes. On my return to the stable I found him dead.

*Post-mortem.*—Twenty-six hours after death, on opening the abdomen, the large intestines were found to be healthy; the small ones highly congested, for some six to eight feet of their length from the stomach. The stomach contained some ingesta—about two gallons—but was not in any degree inflamed. The diaphragm, on the right side, was torn irregularly through the muscular portion, about ten or twelve inches. The lungs consolidated and heavy, and of a dark-green color; and, when cut into, were found gorged with blood.

The heart large; pericardium contained a small quantity of fluid, and was nearly surrounded with adipose matter. The liver small, extremely thin in substance, and of a pale ash color. Trachea and bronchia filled with mucus, and their lining membrane deeply injected.

*Query.*—Was this altogether a sympathetic affection of the lungs and air-passages, from irritative disease in the diaphragm?

*Boston, March 23, 1854.*

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#### THE CIRCULATION OF BLOOD.

[The following letter is from Prof. Wm. J. Scott, of Mississippi, and is addressed, under date of Feb. 28, 1854, to Dr. S. A. Cartwright, of New Orleans. It will be seen that an increased interest is given to a subject which has now been so much written upon, by the analogies which the writer has here presented.]

Sir,—The subject on which you have published some articles, appears to me to be one of especial interest to the physiologist, pathologist, and practising physician. I have not seen the first articles, and am not able, from those I have seen, to get a precise definition of what is intended to be embraced in the new term *hæmatokineté* you have introduced. The derivation shows plainly enough the general meaning of the term. If it is intended to embrace the sum of those forces, which act in circulating the blood, other than the force of the heart; or that there are operative forces beyond the action of the heart; the proposition may be maintained, by analogies between the circulations in plants and the lower animals, and those in the higher animals. If we look to the vegetable kingdom, we see a powerful circulation is maintained in the plant without a central contractile propelling power. The ascending sap may be



raised an hundred feet from the ground, by forces which are inappreciable to the senses. The forces principally engaged in the ascent of the sap, are the evaporation from the leaf, the endosmosis through the spongioles of the roots, and the vital changes which take place in the leaf. The experiments of Hales, quoted by Prof. Liebig, show the power of each. "In experiment xxi., he exposed one of the chief roots of a pear tree in full growth at a depth of two and a half feet, cut off the point of it, and connected the part of the root left in connection with the stem with a tube, which he filled with water and closed it with mercury.

It consequence of the evaporation from the surface of the tree, the root absorbed the water in the tube with such force, that in six minutes the mercury rose eight inches in the tube. This corresponds to a column of water nine feet high."

This force must be developed in the leaf, for if we put the plant in such circumstances that evaporation cannot go on from, and changes take place in, the leaf, the absorption immediately stops. Again, if we introduce the top of a vine into a hot-house, and thus cause the buds to commence growing, the sap will rise through the stem on the outside at a time of the year when there is not the least movement of it under ordinary circumstances. "It has been experimentally ascertained, that if a branch of a vine growing in the open air be trained into a hot-house, it may be made to vegetate during the winter, and to draw up fluid through the stem and roots, whose condition has not been changed. It is thus evident, that in plants the demand for fluid is one of the chief forces by which the supply is obtained." It is thus shown, how this force influences the ascending current. And further, "the ascent of the sap in vegetables is probably due, in part, to the *vis a tergo* occasioned by the action of endosmose at the roots. \* \* \* For if the stem of a vine, in which the sap is rising, be cut across, the sap will continue to flow for some time, from the top of the lower portion; and its force of ascent may be shown to be considerable, by tying over the cut surface a piece of bladder, which will speedily burst—or by affixing to it a tube, containing a column of mercury, which will be raised to the height of forty inches or more."—(Dr. Carpenter's Human Physiology, § 712.) There is another force which acts as a motive power, in circulating the digested sap. "The general direction of the elaborated sap, through the capillary system, is downward; but that the force of gravity cannot have much to do with this movement, is shown by the fact, that, in dependent branches, it has to ascend towards the stem, which it will do without interruption from this cause. Moreover, it may be noticed that this circulation takes place most actively, in parts which are undergoing a rapid development; and that its energy corresponds with the vitality of the part. Further, it may be observed to continue for some time, in parts that have been completely detached from the rest, and on which neither *vis a tergo*, nor *vis a fronte*, can have any influence. It is evident, then, that the force—whatever be its nature—by which this continued movement is kept up, must be developed by the processes to which the movement is subservient; in other words, that the changes involved in the acts of nutrition and secretion are the sources of the motor power."

It may be shown that if two liquids communicate with a capillary tube, for the sides of which they both have an affinity, and if this affinity be stronger in one than in the other, a movement will ensue; the liquid with the stronger affinity, will be absorbed with the greater rapidity, and will drive the other before it. The same result will follow if the two liquids be placed in contact with a capillary net-work, permeating a solid. If the tubes be saturated with the liquid, which has the less attraction for them, this will be driven out and replaced by the one for which they have the greater affinity, when the tubes are put in contact with it. Now if this liquid, by passing through the tubes, loses its affinity for them, it is obvious from the principle, just explained, that it would be driven out by a fresh supply of the original liquid; and in this way a continued circulation would be maintained. "Now this is precisely that which seems to take place in the organized tissue, permeated by a nutritious fluid. The particles of this fluid and the solid matter through which it is distributed, have a certain affinity for each other; which is exercised in the nutritious changes, to which the fluid becomes subservient in the course of its circulation. Certain matters are drawn from it, in one part, for the support and increase of the woody tissue; in another part the secreting cells demand the materials which are requisite for their growth—as starch, oil, resin, &c.; and thus, in every portion traversed by the vessels, there are certain affinities between the solids and fluids. But the fluid which is thus repelled from one part, may still be attracted towards another; because, that portion of its contents which the latter requires may not yet have been removed from it." In this way the descending sap continues through the stem and roots, till it is exhausted of its nutritive properties, and is in a condition to re-enter the ascending current, to be evaporated from the leaf, or to be re-assimilated to continue the same round again.

In the lower classes of animals, the same principles apply. In the living sponge there is an active circulation maintained, without a central organ of impulsion. The fluid is absorbed by the small orifices, and ejected in strong currents from the large ones. In some of the compound polypifera similar currents may be seen. In the star-fish and sea-urchin, there are more complex circulations through regular sets of vessels, and some indications of a central contractile organ, but its pulsations are so weak as scarcely to be sufficient to explain the phenomena of the circulation. In the articulata, in which the respiratory apparatus is distributed more extensively through the structure, there is an absence of a contractile organ. In the crustacea and molusca, the respiration, though aquatic, is performed by a particular organ—the heart is more muscular, and the circulation is more under its influence—though the pulsations are weak. And even in vertebrated animals, there are some indications of the absence of this central power, over the circulation. When we look at the thin walls of the heart of a fish, it seems impossible that it should have much influence over the current of blood flowing back to it by the veins; for a considerable portion of this blood has to traverse three sets of capillaries, between its ejection from and its return to the heart. It is first sent through the respiratory organs for

aeration. Then the confluent vessels which convey this aerated blood from these terminate in the systemic arterial trunk, which distributes it to the systemic capillaries, and after passing through these, returns from the posterior part of the body, and from the viscera; passing through another set of capillaries in the liver, before it returns to the heart. And in warm-blooded animals, in whom the circulation is much more active, the respiratory function is performed separately; a part of the blood has to pass through two sets of capillaries, after it leaves the heart, before it returns. And as there is no perceptible impulse in the current of the blood after it has passed one set of capillaries, hence the phenomena of the circulation must be explained on some other principle than the propulsive power of the heart.

The power of the heart is not sufficient to force the blood through one set of capillaries, if the conditions are not supplied to favor the normal changes which take place in them. Asphyxia will be produced in the fish by holding his head out of the water, or by holding his mouth open in the water; just about as soon as in a man by holding his head under the water. In either case the blood will not pass the lungs; though the heart may, and probably does, act with greater force than usual. The same phenomena will follow, whether the lungs are deprived of oxygen by a ligature around the trachea, or inflated by a gas which contains no oxygen. If, then, this be true, that there is a force in the capillaries, which must be brought into action, and be satisfied before the blood can pass them; the next step is to look, as to what it really is, and how it probably acts. The principles which apply to the circulation of the vegetable apply equally well here.

The deductions of Prof. Draper, "On the forces which produce the organization of plants," and quoted by Dr. Carpenter, are applicable in explaining the phenomena of human physiology.

"The arterial blood, containing oxygen with which it is ready to part, and being prepared to receive in return carbonic acid, which the tissues set free, must obviously have a greater affinity for the tissues than venous blood, in which both these changes have been already effected. Consequently, upon mere physical principles, the arterial blood which enters the systemic capillaries on one side, must drive before it, and expel on the other side of the net-work, the blood which has become venous while traversing it. But if the blood which enters the capillaries has no such affinity, no such motive power can be developed. On the other hand, in the capillaries of the lungs the opposite affinities prevail. The venous blood and the air in the pulmonary cells have a mutual attraction, which is satisfied by the exchange of oxygen and carbonic acid, that takes place through the walls of the capillaries; and when the blood has become arterialized it no longer has any attraction for the air. Upon the same principle, therefore, that prevailed in the vegetable, the venous blood will drive the arterial before it, in the pulmonary capillaries, whilst respiration is properly going on; but if the supply of oxygen be interrupted, so that the blood is not aerated, no change in the affinities takes place whilst it traverses the capillary net-work; the blood continuing venous, still retains its need of change, and its at-

traction for the walls of the vessels; and its egress into the pulmonary veins is thus arrested, rather than aided, by the force generated in the lungs. The change in the condition of the blood, in regard to the relative proportion of oxygen and carbonic acid, is the only one to which the pulmonary circulation is subservient; but in the systemic circulation, the changes are of a much more complex nature; every distinct organ attracting to itself the peculiar substances, which they require for their own nutrition (*or secretion and excretion*); and the nature of the affinities thus generated being consequently different in each case."

Thus the blood conveyed to the liver by the portal vein, contains the materials, from which the bile-secreting cells are developed, and the tissues of the liver have an affinity for such blood; then as soon as these materials are taken out of the blood, no longer does this attraction exist, and it will be driven into the hepatic vein.

The same reasoning will apply to the other organs, especially the kidneys. And if so, here is opened the field for the practical application of these principles by the medical man.

All these changes depend upon the molecular attraction of the ultimate atoms, and may be best explained on that principle. It is not intended to be denied that some organs may not perform the labor of others on an emergency, but rather that each one has its own particular task, and cannot long perform two functions without suffering in consequence. This course of reasoning seems to me to show that there is a motive power existing in the lungs which must be brought into play before the blood can pass, and equally in every capillary plexus; and that these affinities are potent means for the circulation of the blood.

March, 1854.

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## THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON, APRIL 5, 1854.

*Burial of the Dead.*—Happily for the health of coming generations, the public sentiment is now extensively awakened to the monstrous evil of burying the dead in cities. The alarm began in England, and precautions were taken against the increasing dangers from intramural interments, which had the good effect of rousing the attention of people in the compact cities of this country. When it is recollected that in a city with a population of one hundred and thirty-five thousand, the average mortality is not far from sixty a week, and that, if the burials are all within the city, a mass of effluvia from decomposing animal matter must be diffused through the air to be inhaled by the living, it may well be imagined that the consequences must be injurious. Boston, very wisely, has taken a decided stand, and no burials are now made in the central parts of the city. It has long been the custom, both here and in neighboring cities, to entomb under churches, which is infinitely worse than in grave-yards; but that, too, has been interdicted. A number of beautiful grounds for the use of the city, in the neighborhood of Boston, of extended notoriety on account of their

picturesque location and splendid artistical memorials of the dead, are accessible at all periods, and are more and more sought by all classes. There was a fear at one time that Mount Auburn would become objectionable on account of the multitude of tombs. A further multiplication of them is not permitted, and bodies are now consigned to the earth, where nature and common sense indicate they should be deposited. Thus the gases from the bodies are wafted away, and there is little to fear in regard to the stability of the public health in the vicinity of that cemetery. Burials in cities should be peremptorily denied by the civil authorities, every where and under all circumstances.

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*Large Doses of Pills for Children.*—A child in this city, three years old, was left alone by its parents last week, for a short time, when it improved the opportunity of imitating their mode of medication, by resorting to the pill-box. It appears that a box of so-called "Indian Vegetable Pills" had been left within its reach, and the child actually took *eleven* of them! But, strange to say, no harm followed this extraordinary large dose, save the fright it caused his distressed parents. It did *physic* the little one pretty thoroughly, and *we are told* that the child's health has been improved by the accidental circumstance!

Another similar case recently occurred under our observation. A child, who had a peculiar liking for pills, during the absence of its nurse went to the medicine chest and took from it a small vial containing *homœopathic* globules, said to be "the active properties of *dulcamara*," and of which it was considered that "*three* was a large dose for an adult." The little urchin actually ate two-thirds of them, say about *one hundred*! We were consulted by the parents immediately after the *accident* was made known to them; but on learning the facts we assured them they need have no fear of any bad result, as such infinitesimals could not possibly do the child an injury. Since then, we understand the parents have abandoned the use of such very "dangerous medicines," and now employ a regular practitioner.

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*Legacies by the late Dr. Shattuck.*—It will be recollected that mention was made in this Journal, sometime since, of a donation of \$14,000 by Dr. George C. Shattuck, towards sustaining the professorship of Morbid Anatomy in Harvard University. At his death, it appears by his will that he has given \$10,000 more to the same institution; but the specific object to which it is to be appropriated, we have not yet learned. In addition to the above legacy, he has given the third of the income of certain manufacturing stocks for three years to the Massachusetts Medical Society, of which he was once the honored President. It is said that this income will amount to *ten thousand dollars* in the three years. Besides the above legacies, he gave some \$40,000 to several charitable and religious societies in this city.

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*The Invalid's Hotel.*—This is the name of an establishment lately erected in Great Barrington, Berkshire County, in this State, by Dr. Clarkson T. Collins, for the purpose of treating diseases of a chronic nature. From the description given of it, there can be no doubt that, when better known, it will be sought by the invalid who may wish a quiet home among our western hills. We are quite confident that *the landlord* will be found capable of furnishing them all the comforts of a home, besides the careful medical

attendance which a skilful physician alone can bestow. His establishment, although possessing all the requisite paraphernalia of a well-appointed hospital, will not have the appearance of such an institution, its whole arrangements and appointments being replete with elegance, comfort, luxury and convenience, in fact being equal to our first-class hotels. We wish the doctor success in his new enterprise, and shall take pleasure in alluding to his *Hotel des Invalides* again when an opportunity presents for learning more of the particulars relating to it. Dr. Collins is known to our readers as the writer of several valuable papers in former years, and we hope they may again hear from him through our pages.

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*Visit of a Russian Savan.*—Dr. Hamel, of St. Petersburg, a distinguished member of the Royal Academy, a Councillor of State in the Russian Empire, and a gentleman of great learning, is now on a visit to this city. He has been deputed, by the Emperor Nicholas, to visit the various educational, scientific and philanthropic institutions of our country. On Wednesday last, in company with both branches of the City Government, the Governor and Lieut. Governor of the Commonwealth, &c., he visited the public institutions at Deer Island, in Boston Harbor. He has letters from some of the most eminent men of Europe; and being himself a distinguished *savan*, and in pursuit of information relative to the institutions of our country, it is hoped that the public authorities, in the places he may visit, will place at his disposal facilities for accomplishing the object of his undertaking.

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*"Mesmerism in Hæmorrhage."*—Two communications have been sent us in reply to the brief notice we gave, in a late number of the Journal, respecting a *mesmeric operation* in a case of hæmorrhage following the extraction of a tooth. One of them is from the gentleman to whom the credit of curing the patient was attributed, but who disclaims the title of *mesmeric physician*, and the other is from the brother of the patient. As neither is from any one of the "*seven physicians*," who were alleged to have exhausted their skill in the attempt to arrest the great flow of blood, and from whom we solicited a true report of the facts in the case, we must decline to publish them. There is a great discrepancy in the statements of the two gentlemen respecting the merit of *saving* the life of the patient. The first one says, "All I claim in the case, is that of *stopping the blood*;" while the other, with as much assurance, after alluding to the "many physicians who were consulted," says "among others, a disciple of *Mesmer* came, but the sight of blood was too much for his susceptibility." "He neither did, nor pretended to do anything. The patient continued to bleed for a week after his visit." We present these assertions to show the difficulty of getting at the facts, and hope this will end all further controversy upon the subject, as our only object in alluding to the report was to ascertain if it were true that seven physicians were unable to arrest the hæmorrhage, and if so, to make known our mode of practice in such cases.

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*History of Epidemic Yellow Fever.*—The publication alluded to some weeks since, as being in the process of elaboration, viz., "A History of the Epidemic Yellow Fever at New Orleans in 1853," has issued from the press. E. D. Fenner, M.D., of extended medical fame, is the author. Of course the authenticity of the production, as it relates to specific profes-

sional details, may be relied upon, and hence it must necessarily be a guide to all future writers on the same interesting subject. After making certain sensible introductory observations, the meteorology of the period under consideration is introduced. Tabular statements, abounding in figures, are insufferably dry picking to most men. But in this instance, there is an appropriateness in being made familiar with the condition of the atmosphere at different periods when the destroying angel was hovering over the plague city of New Orleans. Next, the sanitary condition of the city is stated, together with extracts from the papers of the day, abounding in prophetic warnings. A conversation is related between somebody and Mr. Death, with a puckered mouth and short trowsers, which seems at first rather out of place in a grave history. In the sequel, however, the story becomes philosophically pertinent. The commencement of the epidemic in a ward of the Charity Hospital, seems like the first drawing of the curtain on the stage, and general sickness and death follow in quick succession. Next, the cases under the charge of different gentlemen, occupy a large number of pages. Thus Dr. Fenner proceeds from one interesting point to another, till he chronicles every fact that appears to have the least claim to historical record. For a purely professional paper, it is written in good taste, and is nowhere overdone by thrilling narratives or tedious relations of unimportant circumstances. It is an art not easily acquired, to learn to say just enough, and no more. Very many professional chroniclers destroy their own well-meant, excellent labors by an excessive use of words. Dr. Fenner has a judicious way of managing a subject, based on a long experience as a public writer. But there is a natural endowment of intellect, not to be overlooked or underrated, either in literature or science, on which the real character of a treatise like this mainly depends. For the library, and for reference, chronologically and professionally, this work will be valuable many ages hence.

*Medico-Chirurgical College of Philadelphia.*—The Constitution and By-laws, with a catalogue of officers and pupils of the Medico-Chirurgical College of Philadelphia, &c., constitute an interesting pamphlet to medical men. Philadelphia has always kept up with the public sentiment in respect to providing means of instruction in medicine and surgery. A desire for presenting greater advantages for medical pursuits than were to be had in other cities, led to the organization of the different schools in that city, now so vigorous and prosperous. No doubt the Medico-Chirurgical College will have rank and influence, of the highest order, when by years of honorable effort its facilities and claims are known abroad among the people.

*Note from Dr. Chandler.* TO THE EDITORS, &c.—A mathematical friend charges me with piracy on the vocabulary of his own department, in seizing, *vi et armis*, on his pet word, "theorem," so long held sacred to the sole use and behoof of "pure" science, and sacrilegiously converting it to the impure theme of physiology, in my late communication to the Journal. Very likely, the charge is just. Nevertheless, it seems an appropriate, and certainly is a very convenient substitute for the *terms and phrases*, in which a "theory" is promulgated; and its import, *so used*, not likely to be misapprehended. On the whole, I conclude to *stand my hand*.

Yours respectfully, J. L. CHANDLER.

St. Albans, Vt., March 28, 1854.



**Importance of Re-vaccination.**—Within the last two or three months there have been many cases both of varioloid and smallpox in this city and the surrounding towns. As is usual at such times, a *sufficient alarm* was created among many of our citizens to induce them to have all who were unprotected in their families, vaccinated at once. In some cases, whole families have been re-vaccinated, several of which having come under our especial care, the effects were particularly noticed. In one family of seven, three of the number (adults) were infected by the inoculation, and had the genuine vaccine pustule. In another family of five persons, three of the number (children) had the true vaccine pustule. Another family, consisting of seven, were all vaccinated but one, and that one was sick at the time with the varioloid. Out of the six, two were infected with the vaccine disease. There can be no mistake about the genuineness of the pustule, as matter was taken from each one, and successfully used in vaccinating others who had never before been vaccinated. Out of ten other cases that have been observed, where persons have been re-vaccinated, the average number infected was in the proportion of three to five. With such evidence before us, it would seem an imperative duty (especially if there be smallpox or varioloid in our midst) to re-vaccinate in every case where a previous vaccination has not been performed within seven or ten years.

**Grave-Yard Poisoning.**—The following paragraph is copied from a late number of the London Lancet, and is a specimen of many cases that are reported, showing conclusively that intramural burials may be injurious to the living, in large towns and populous cities. "Dr. Sutherland, one of the grave-yard inspectors to the Home Office, has been seriously indisposed from inhaling poisonous gas, the escape from decaying corpses in a grave yard that he inspected. He is, however, now recovering. Dr. Walter Lewis is ill from the same cause."

**Penn Medical University of Philadelphia.**—A pamphlet containing a "curriculum of the courses of lectures to be held at the Penn Medical University of Philadelphia, and announcement of the spring session of 1854," has been received. The platform upon which the faculty base their opinion, as to a proper course for medical instruction, is broad enough, and if the plan which has been adopted by the faculty should be carried out, the student will have abundant opportunity to perfect himself in the mysteries of the healing art.

**TO CORRESPONDENTS.**—A communication has been received from an anonymous correspondent, favoring our views of "medical ethics," as expressed in the Journal of March 22d. It is presumed it was not intended for publication, as the name of the author did not accompany it.—Several communications, already acknowledged, are waiting space for insertion. The following have been received in addition:—Dr. Castle on Mesmerism in Hemorrhage; Prof. Booth's Analysis of Church-hill Alum Water; Dr. Hall on the use of Alcoholic Liquors in the Practice of Medicine; Dr. Cornell on Comparative Anatomy and Physiology.

**Deaths in Boston** for the week ending Saturday noon, April 1st, 70. Males, 39—females, 21. Accidents, 3—inflammation of the bowels, 1—inflammation of the brain, 3—disease of the brain, 1—burns and scalds, 1—consumption, 11—convulsions, 3—croup, 4—cancer, 2—dysentery, 1—dropsy, 1—dropsy in the head, 4—infantile diseases, 6—puerperal, 1—fever, 1—typhoid fever, 1—scarlet fever, 3—hooping cough, 1—intemperance, 2—inflammation of the lungs, 2—disease of the liver, 1—marasmus, 1—measles, 2—old age, 1—palsy, 1—rheumatism, 1—scrofula, 1—smallpox, 4—teething, 3—unknown, 2.

Under 5 years, 23—between 5 and 20 years, 16—between 20 and 40 years, 14—between 40 and 60 years, 8—above 60 years, 3. Born in the United States, 52—Ireland, 13—British Provinces, 3—England, 1—Germany, 1. The above includes 5 deaths in the city institutions.

*Dr. George C. Shattuck.*—At a regular meeting of the Boston Society for Medical Improvement, held on Monday evening, March 27th, the following Resolutions were unanimously adopted, and ordered to be printed in the Boston Medical and Surgical Journal, and in the daily papers.

*Resolved,* That the Boston Society for Medical Improvement desires to express its sense of its great loss experienced in the recent death of one of its three honorary members, Dr. George C. Shattuck.

*Resolved,* That although prevented by his age from any participation in its active business, this Society has always recognized him as one of those who took the strongest interest in its welfare. He was its constant friend, prompt to offer, unsolicited, at several times when it was most efficient and useful, pecuniary aid, in the unostentatious manner which has always characterized his public and private gifts.

*Resolved,* That in common with the many who knew and appreciated the virtues of Dr. Shattuck, this Society desires to offer its tribute to his memory, trusting that the example he has left of single-mindedness, kindness of heart, generosity and devotion to principle, will not be without its influence upon its members.

FRANCIS MINOT, *Sec'y pro tem.*

*Treatment of Hæmorrhage from the Navel of New-born Children.*—Ordinary remedies are insufficient to arrest the bleeding. Kolophonian, alum, the various styptic fluids, turpentine, ice, amadou, compression, &c., have been employed in vain. Cauterization has been several times tried, both with the nitrate of silver and the actual cautery. In fact the use of the ligature appears to be the only means worth dependence upon as capable of restraining the bleeding, and the mode of its application *en masse*, as advised by Dubois, is to be preferred. But in the best manuals and treatises we find no advice given as to the method of securing immediately the umbilical arteries, and, so far as we know, it has never been accomplished, from the many difficulties attendant upon its performance. It has therefore been proposed to secure all the three vessels together, by pulling the navel-knot forward, and passing around it a ligature with the help of hare-lip pins. At first sight this operation seems to have much in its favor, though experience does not confirm it. Nevertheless, up to the present time it has been of most service.—*Roger, in Journal f. Kinderkhtn.*

*Use of Extract of Bullock's Blood.*—Dr. Behrend thus writes:—"Dr. Mauthner, to whom we are indebted for the introduction of this remedy, answers a request of mine as follows: 'I now give it to children in larger doses than before, to the extent of half an ounce in a day, dissolved in water. In many anæmic states the favorable result is so striking that the parents, perceiving the improvement of their child, generally desire a continuance of the agent. In these larger doses, it is true, the drug colors the dejections of a brown hue, but it does not give rise to the least dyspeptic symptom. It has never caused emesis, and if the child has shown some dislike to it at first, it takes it afterwards with great avidity. Children who were in the extreme stage of exhaustion, whose stomachs were so irritable that milk and beef-tea or broth were rejected by them, and cod-liver oil could not be in the least retained, bore the extract of ox-blood well, and throve admirably.' Here, in Berlin, [Mauthner is at Vienna,] the extractum sanguinis bovini is given with very good effect to chlorotic and emaciated girls, and even to phthical adults. A colleague has found it very efficacious in rachitis."—*Id.*